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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,080	09/25/2008	Jens-Peter Schlomka	DE040022	5811

24737 7590 12/01/2009  
PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
P.O. BOX 3001  
BRIARCLIFF MANOR, NY 10510

EXAMINER
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KAO, CHIH CHENG G

ART UNIT	PAPER NUMBER
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2882

MAIL DATE	DELIVERY MODE
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12/01/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/597,080	<b>Applicant(s)</b> SCHLOMKA, JENS-PETER	
	<b>Examiner</b> Chih-Cheng Glen Kao	<b>Art Unit</b> 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8 and 9 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/21/09</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim contains variables (i.e., " $a_n$ " and " $r$ ") that are not defined in this particular claim itself. Therefore, the claim is indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Nahaliel et al. (US 6243438; hereinafter referred to as Nahaliel).

3. Regarding claim 1, Nahaliel discloses a computer tomograph (fig. 1, #20) for detecting rays (fig. 1, #26) that are necessarily elastically scattered in an object (fig. 1, #24), wherein the

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object is present in an examination region (fig. 1, at #24) and the scattered rays are necessarily scattered at different scattering angles (due to the interaction of rays #26 with the object #24), with a radiation source (fig. 1, #22) for permeating the examination region (fig. 1, at #24) with primary radiation (fig. 1, #26), and a detector (figs. 9a-9e) with detector elements (figs. 9a-9e, #192-206) which lie outside the region permeated by primary radiation (fig. 1, #26 through the central axis) and whose effective dimensions become increasingly smaller in the direction of decreasing scattering angles (col. 22, lines 15-19).

4. Regarding claim 2, Nahaliel further discloses absorption elements (figs. 9a-9e, #34) which each cover a portion of a detector element (figs. 9a-9e, #192-206) such that the region of the scattering angle that can be detected by the respective detector element is necessarily reduced (figs. 9a-9e, via #34).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nahaliel as applied to claim 1 above, and further in view of Harding (US 4956856; hereinafter referred to as Harding ('856)).

Nahaliel discloses the system of claim 1 as recited above.

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However, Nahaliel fails to disclose a polychromatic radiation source and a detector having energy-resolving detector elements.

Harding ('856) teaches a polychromatic radiation source (col. 1, line 68 - col. 2, line 1) and a detector having energy-resolving detector elements (col. 2, lines 1-5).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the system of Nahaliel with the teaching of Harding ('856), since one would have been motivated to make such a modification for fine-tuning the system to more clearly see the object of interest.

6. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nahaliel as applied to claim 1 above, and further in view of Harding (US 6470067; hereinafter referred to as Harding ('067)).

7. Regarding claim 4, Nahaliel discloses the system of claim 1 as recited above. Nahaliel further discloses a radiation source (fig. 1, #22) for generating a fan-shaped ray (fig. 1, #26), with detector elements (figs. 1-2, #30) that lie in planes that extend parallel to the axis of rotation (fig. 1, at #25) and subdivide the radiation into sections such that the detector elements (figs. 1-2, #30) present in a column parallel to the rotation axis (fig. 1, at #25) are substantially hit by primary or scattered radiation from one and the same section.

However, Nahaliel fails to disclose absorption lamellae arranged between the detector and the object, which lamellae lie in planes that extend parallel to the axis and subdivide the radiation fan into sections.

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Harding ('067) teaches absorption lamellae (fig. 2, #60) arranged between a detector (fig. 2, #16) and an object (fig. 2, #13), which lamellae (fig. 2, #60) lie in planes that extend parallel to an axis (fig. 2, #14) and subdivide the radiation fan (fig. 2, #41) into sections.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the system of Nahaliel with the teaching of Harding ('067), since one would have been motivated to make such a modification for blocking x-rays to create a clearer image.

8. Regarding claim 5, Nahaliel discloses the system of claim 1 as recited above.

However, Nahaliel fails to disclose a radiation source for generating the primary radiation either in the form of a planar fan ray or a conical ray, with a two-dimensional detector, and with a first mode of operation in which a portion of the detector elements receives the scattered radiation generated by the planar fan ray, and with a second mode of operation in which the detector elements receive the primary radiation generated in the conical ray.

Harding ('067) teaches a radiation source (fig. 1, S) for generating primary radiation (fig. 1, #42 or 43) either in the form of a planar fan ray (fig. 1, #41) or a conical ray (fig. 1, #42), with a two-dimensional detector (fig. 1, #16), and with a first mode of operation (claim 4) in which a portion of the detector elements (fig. 1, #16) necessarily receives scattered radiation generated by the planar fan ray (fig. 1, #41), and with a second mode of operation (claim 4) in which the detector elements (fig. 1, #16) receive the primary radiation generated in the conical ray (fig. 1, #42).

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It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the system of Nahaliel with the teaching of Harding ('067), since one would have been motivated to make such a modification for obtaining more information with few additional means (col. 2, lines 20-26) as shown by Harding.

9. Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haar (US 2001/0050970) in view of Harding ('856).

10. Regarding claim 6, Haar discloses a detector (fig. 1, #4) which comprises at least one column comprising detector elements (figs. 2-8, b2-b10), wherein the pitch of their centers and their dimensions increase towards a maximum value in the direction of the column (figs. 2-8, from b10 to b2).

However, Haar fails to disclose a detector having energy-resolving detector elements.

Harding ('856) teaches a detector having energy-resolving detector elements (col. 2, lines 1-5).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the system of Haar with the teaching of Harding ('856), since one would have been motivated to make such a modification for fine-tuning the system to more clearly see the object of interest.

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11. Regarding claim 9, Haar necessarily includes at least one detector element (figs. 2-8, b1-b10) which is formed by a plurality of mutually adjoining sub-elements (such as the radiation conversion layer, the electrical contact for an output, the substrate of the detector elements, etc.).

***Allowable Subject Matter***

12. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter.

Regarding claim 7, the prior art fails to disclose or fairly suggest a detector for determining elastically scattered rays, including wherein the pitch of the centers of two mutually adjoining detector elements  $g$  is defined by  $g = a_{n+1} - a_n$ , and it holds that:

$$a_{n+1} = \frac{a_n \left(1 + \frac{r}{2}\right) + s}{1 - \frac{r}{2}} \text{ where } r \text{ is a constant expressing the resolution of the scattering angle and } s$$

is the distance between two sensitive regions of mutually adjoining detector elements in the direction of the column and  $a_n$  is the distance from the center of detector element  $EL_n$  in the z-direction from a fan-shaped ray generated from a radiation source, and  $a_{n+1}$  is the distance from the center of detector element  $EL_{n+1}$  in the z-direction from the fan-shaped ray, in combination with all of the other limitations in the claim.



***Response to Arguments***

13. Applicant's arguments with respect to claims 1-5 have been considered but are moot in view of the new ground(s) of rejection. Applicant's other arguments filed September 10, 2009, have been fully considered but they are not persuasive.

Regarding claims 6 and 9, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., effective dimensions becoming increasingly smaller) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571)272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chih-Cheng Glen Kao/  
Primary Examiner, Art Unit 2882